



The International Fancy Guppy Association



Dedicated to Promoting The Fancy Guppy Hobby

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The Effect of Vitamins On Tropical Fish

By Dennis Parrott

How did I get interested in this subject? My senior year I had to give a seminar for my biology degree. So I picked a subject that I was interested in and that I would hopefully find answers to many questions. So I picked "The Effects of Vitamins on Tropical Fish."

At times I wonder if I had picked a good subject or not. I went through Biological Abstracts and found only one article on tropical fish. I found some information on effects of vitamins on fish and other animals. I talked to my folk's veterinarian and used some of his books. After lots of research on the issue I found that very little had been done on the effects of vitamins on tropical fish. I found one article in a club paper which was an experiment done on guppies by a hobbyist. Most experiments were done by the hobbyist in his spare time to improve the quality of his fish for breeding and showing. Hobbyists who do experiments should publish their results so not only other hobbyists will benefit but also the scientific world.

Vitamin A: Itself is fat soluble and can be stored in the fish's body. Vitamin A is essential to growth and development of the fish. This vitamin is necessary for the maintenance of the epithelial cells of the scales, eyes, digestive and respiratory tracts (tills). In vitamin A deficiency), these cells become flat, brittle and less resistant to infection than normal. This vitamin is called an 'anti-infection' vitamin. Also, vitamin A is necessary for the maintenance of normal nerve tissue for reproduction and for growth of bones in the development of larger strains.

Vitamin B1: (Thiamine) is stored in the body to a great extent. Evidence of a deficiency appears within a few weeks. The function of vitamin B1 in the body of fish is to form the active part, or 'coenzyme' of certain enzymes involved in the metabolism of carbohydrates, particularly of pyruvic acid when a vitamin B1 deficiency interferes with carbohydrate metabolism, a number of characteristic symptoms appear. A lack of vitamin B1 causes loss of appetite, a failure to grow, general weakness, nervous malfunctions and muscular action stoppage in the caudal fin. If they do not get vitamin B1, they will finally die. The symptoms disappear very slowly when given vitamin B1 in their food.

Vitamin B2 (Riboflavin) is necessary for the metabolism of glucose, amino acids and certain cellular oxidation process. A deficiency of vitamin B2 is marked by the appearance of open cracks on the fish's body. These become infected and finally cause death. A deficiency of vitamin B2 causes a failure of growth, loss of some scales, inflammation of the eyes (pop eye) and finally death.

Vitamin B6: (Pyridoxin) is involved in the metabolism of amino acids, a deficiency causes failure of growth, nervous disorder, sluggishness and the fish becomes anemic and has atrophied lymph tissues that lower resistance to infection. To prevent this, add more protein in the diet and more vitamin B6 is needed to stimulate growth for larger fish.

Vitamin B-12: (folic acid) choline and para-amino benzoic acid. Folic acid and vitamin B-12 are necessary to prevent anemia and are used in conjunction with liver extraction in developing larger fish by higher metabolism. They are active as coenzymes in the metabolism of certain substances involved in the synthesis of amino acids and nucleic acids in reproduction and formation of red blood cells.

Choline is a growth factor, the absence of which causes hemorrhage in the kidneys and a bone deformity. It is important in the metabolism of fats and proteins not as a coenzyme as many other vitamin B complexes are, but as a source of methyl groups used in building up certain essential substances.

Para-amino benzoic acid has been reported as important in preventing tail splitting and in pelvic fin, dorsal fin and caudal fin, to prevent color loss and short growth.

Vitamin C plays a part in cellular oxidations, particularly the oxidation of the amino acid, tyrosine. It is necessary for the maintenance of normal connective tissue. In its absence, fragile and easily ruptured tissue results in hemorrhages under the skin. The development of the spinal cord is abnormal, so the fish is stunted. Lack of this vitamin can also be seen by bruised scales and general weakness of the fish in swimming.

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